NASA Advisory Council Regulatory and Policy Committee Observations, Findings, and Recommendations

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Export Controls

1. Extending Exceptions and Special Provisions Provided to the International Space Station ("ISS") to the Lunar Gateway, Commercial Habitats Attached to the ISS, and Future Private Sector Platforms.

Observation: Export Controls can have a substantial impact on all commercial space operations, regardless of platform or destination; they can also have a substantial impact on NASA-led missions done in collaboration with international partners. Specifically, export control-related delays can place space station operations in jeopardy, which is why Category XV of the United States Munitions List ("USML") excludes the ISS and "its specially designed (as defined in the EAR) parts and components, which are subject to the EAR" as well as "articles for the ISS determined to be subject to the Export Administration Regulations ("EAR") via a commodity jurisdiction determination." Moreover, Part 740 of the EAR provides a license exception to the ISS, which "authorizes exports and reexports required on short notice of certain commodities subject to the EAR that are classified under ECCN 9A004 to launch sites for supply missions to the ISS."

Finding: The Lunar Gateway, commercial habitats within the ISS program, NASA-led missions, and private sector platforms, regardless of location, including suborbital, orbital, cislunar, and deep space, that may facilitate NASA's mission, would benefit from the same relief from export control provisions that the ISS enjoys.

Recommendation: NASA should make it a priority to lead an effort in collaboration with the Department of State, the Department of Commerce, and Congress to request that the exceptions to the USML and special provisions within the CCL provided to the ISS are expanded to explicitly include the Lunar Gateway, commercial habitats within the ISS program, NASA-led missions, and private sector platforms, regardless of location, including suborbital, orbital, cislunar, and deep space, that may facilitate NASA's mission, would benefit from the same relief from export control provisions that the ISS enjoys.

2. Removing Export Controls for Commercially Available Technologies in Support of SPD-2.

Observation: Per Space Policy Directive 2, the regulations on commercial space, explicitly including export controls, should be streamlined to support American innovation and private sector growth.

Observation: When technologies, services, or information are already available in the global marketplace, even well-intentioned U.S. export controls on such technologies, services, or information can hinder domestic commercial growth and innovation while providing little or no national security protections. Additionally, sustaining export controls on widely available technologies, services, and information only serves to absorb limited government time and resources, diluting the efficacy of export controls on critical technologies that legitimately require robust protection.

Finding: When asked to review export control licenses or Commodity Jurisdiction Requests, NASA should advocate for a USG policy that export control licensing requirements – particularly placing technologies, services, or information under the International Traffic in Arms Regulations – should not apply when space technologies, services, or information are already available in the international marketplace.

Intellectual Property

Observation: The ISS continues to play an important role in supporting national objectives and facilitating international partnerships to test and support ongoing efforts to create commercial demand in Low Earth Orbit ("LEO") and future destinations.

Finding: Commercial research and development ("R&D") will play a vital role in supporting and maintaining prospective private sector space station or other commercial space operations. Without robust commercial R&D activities on ISS to drive the development of new technologies

and innovations that leverage the space environment, the business case for American private sector space platforms will remain challenging and limited.

Finding: Maximizing private investment opportunities on the ISS will facilitate opportunities for commercial investment in commercial platforms.

Finding: For the nascent market of commercial activities conducted aboard any space station to grow and eventually contribute to the business case of future platforms, operators and customers must have strong confidence in regard to the ownership of intellectual property utilized on the ISS, developed from ISS-based activities, or originally conceived of or reduced to practice aboard the ISS.

Recommendation: (reword for past/ongoing effort) NASA should work with Congress to obtain legislative relief to ensure that the Agency can waive IP rights related to commercial R&D on the ISS and future destinations for the U.S. Government as a whole. NASA should then implement a policy that clarifies that all intellectual property utilized on the ISS, developed from ISS-based activities, or originally conceived of or reduced to practice on the ISS, that is for commercial and non-NASA research, is the property of the private entity or entities carrying out the activity when the activity is partially or completely funded by the private sector.

Committee on Space Research

Finding: It is in NASA's, the nation's, and the world's interest for NASA and non-government entities to contribute to the advancement of science and space exploration by executing missions to celestial bodies, with appropriate oversight and supervision by American authorities.

Finding: Policies and guidelines produced by the Committee on Space Research's ("COSPAR's") Planetary Protection Panel are not legally binding.

Recommendation: NASA should establish a multi-disciplinary team of experts from industry, the scientific community, and relevant government agencies, to develop U.S. policies that properly balance the legitimate need to protect against the harmful contamination of the Earth or other celestial bodies with the scientific, social, and economic benefits of public and private space missions. The recommended multi-disciplinary team should be tasked with producing a detailed policy, provided to a joint session of the Regulatory and Policy Committee and the Science Committee, and (HEO), that will describe best practices for the Administration, the science and research community, and private sector, to protect against harmful contamination and adverse changes in the environment of the Earth.

Recommendation: The term 'Planetary Protection' should not be used by NASA to describe the need to prevent the contamination of the Earth or other celestial bodies through human or robotic exploration. Instead, NASA should more properly refer to conducting space exploration

so as to avoid 'harmful contamination' of celestial bodies and 'adverse changes in the environment of the Earth' when referencing concerns regarding contamination through human or robotic exploration. (alter to fit with the previous recommendation to review the term)

Supporting Space-Based Commercial Development

1. Encouraging Investment in Commercial Hardware/Services

Observation: America must maintain a strong and ongoing human spaceflight presence. This will require the emergence of sufficient demand for in-space commercial services. NASA should therefore allow ISS and any other platforms to be leveraged by commercial entities to support and encourage the development of such demand.

Finding: The U.S. private sector has already invested nearly $100 million in hardware aboard the ISS to support commercial activities, leveraging the substantial federal investment in ISS operations and transportation to enable these opportunities.

Finding: For the nascent market of commercial activities conducted aboard a space station to grow and eventually help support the operation of future commercial services, NASA should further encourage private commercial investment in hardware aboard the ISS and/or a private sector habitat(s) within the ISS program.

Finding: At the present time, no owner of commercial hardware aboard the ISS has a guarantee of customer access to the hardware that it has paid for and owns. This risks stranding existing commercial investments and discouraging future commercial investments.

Recommendation: NASA should guarantee access to company-owned facilities, which have been or will be placed on the ISS or future destinations, based on the amount of private investment. The pool of station resources provided by NASA for companies that have invested in their own hardware aboard the ISS or future destinations should be of a sufficient size and scale to significantly stimulate further marketing and investment in commercial operations aboard a space station. (use metrics and consideration for priority)

2. Focus on Developing and Enhancing Private Sector Demand for Space-Based Commercial Operations

Finding: NASA has stated its intent to transition from being the landlord of a government-owned space station to becoming one of many customers for a private sector-owned and operated space station. NASA should actively identify and remove barriers to the private sector's creation and scaling of business models that will drive demand for space station services in support of this transition.

Recommendation: NASA should reserve a discrete percentage of upmass, downmass, volume aboard the ISS, crewtime, and other resources to support purely commercial activities. Pure commercial activities involve operations that generate revenue but do not contribute to NASA's mission, education, or scientific development. Examples include the sale of items flown in space or the filming of advertisements. NASA should work with Congress to gain the explicit authority required to hold an auction for such activities and to retain the funds generated from the auction to support NASA STEM-related activities. Although the nascent nature of the market may skew initial results, conducting an auction will help determine the actual value of purely commercial activities aboard a space station while spurring entrepreneurship and market growth.

Recommendation: NASA should also reserve a discrete percentage of upmass, downmass, volume aboard the ISS, crewtime, and other resources to support commercial activities that contribute to NASA's mission, education, or scientific development. Examples of such activities include in-space manufacturing and commercially-focused R&D. In consultation with the NASA Advisory Council's Regulatory and Policy Committee, NASA should develop an objective and equitable process by which it would evaluate and select proposed activities, placing a priority on projects that could potentially enhance substantially the demand for services provided via a future private sector space station.

Enhancing ISS and Private Sector Habitat/Station Utilization in LEO and Beyond

Finding: The development and utilization of U.S. commercial crew transportation services to ISS, as well as commercial habitats within the ISS program and future commercial platforms in LEO and beyond, would benefit NASA and the advancement of science and commerce. NASA's public objective for the commercial crew program to foster a commercial market in LEO is enhanced by using mission capacity beyond NASA's requirements for commercial endeavors, and would be harmed if NASA precluded commercial providers' ability to engage in commerce associated with extra seat sales.

Recommendation: NASA should actively seek to support commercial providers' implementation of CCtCap contract and task ordering terms allowing the sale of excess crew seats available under the contracted U.S. crew transportation flights to non-NASA passengers in order to enhance the market for human spaceflight and meet the Agency's Congressionally-mandated obligation to "seek and encourage, to the maximum extent possible, the fullest commercial use of space."[1]

Recommendation: Compensation generated by commercial crew transportation services should enhance providers' ability to continue providing crew services to NASA as well as to foster the LEO commercial market. Reimbursement of funds to NASA for expenses associated with executing the commercial activities such as NASA-provided services associated with ISS training or on-orbit hosting of passengers while on the ISS should be applied by the Agency to facilitate commercialization initiatives in and beyond LEO.

[1] The National Aeronautics and Space Act of 1958 (as amended).

Utilization of Logos

Observation: NASA contributes to a vast array of critical programs and initiatives throughout the U.S., and the U.S. space industry contributes to NASA missions. However, even when NASA is the primary customer and/or funding source for various projects, FAR-based contracts and Space Act Agreements ("SAAs") often discourage or outright prohibit contractors and partners from using the NASA logo. There is no policy in place that allows or encourages NASA to use its contractors' logos in activities related to missions to which they contribute.

Observation: Instead of discouraging or prohibiting the use of their logos, many other federal agencies actually require their logos to be placed on products produced by contractors or partners. For example, the National Science Foundation ("NSF") requires the use of a 'Powered by the NSF' logo on any effort that was funded by the Foundation.

Recommendation: NASA should conduct a comprehensive review of its contracts, SAAs, and other legal vehicles to identify programs and partnerships wherein i) the contractor/partner should be permitted and encouraged to use the NASA logo in association with any publicity related to the activity, and ii) NASA should be permitted and encouraged to use the contractor's logo in association with any publicity related to the activity.

Leveraging Advertising

Observation: For NASA to pursue space-based promotional activities, which would be legally prohibited as endorsement, Congressional relief from the ethics rules codified in 5 C.F.R Part 2635 would be required.

Finding: Space-based promotional activities could enhance NASA's public profile and encourage youth to pursue careers in Science, Technology, Engineering, and Mathematics ("STEM") as well as other activities in line with NASA's mission and national interests.

Recommendation: For activities conducted on behalf of NASA, the Agency should examine the possible public benefits of space-based promotional activities on rockets, spacecraft, hardware, and/or modules, taking into account historical insights.

Astronaut Endorsements

Observation: 18 USC § 209, which prohibits Federal employees, including NASA astronauts, from receiving pay for their official duties from a non-Federal source, and the ethics rules codified in 5 C.F.R Part 2635, prohibit Federal employees from using any Government position, title or any authority associated with public office to endorse any product service or enterprise. These restrictions do not apply to commercial human spaceflight participants.

Finding: Astronauts serve as excellent ambassadors for NASA and play a pivotal role in inspiring students to pursue STEM education, as well as other activities in line with NASA's mission and national interests.

Finding: Per prior observations, findings, and recommendations, NASA astronauts could participate in an Agency endorsement activity.